

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"),

The Warner Village Water District

is authorized to discharge from the Wastewater Treatment Facility located at

**55 West Joppa Road
Warner, New Hampshire 03278**

to receiving water named

**Warner River
(Hydrologic Code; 01070003)**

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

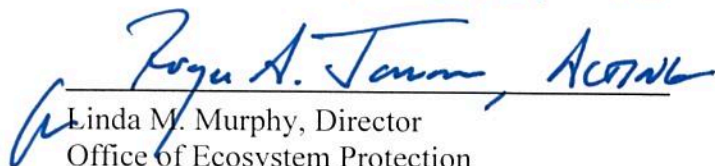
This permit shall become effective on signature.

This permit and the authorization to discharge expire at midnight on November 30, 2011.

This permit supersedes the permit issued on June 21, 2001, and subsequently modified on February 11, 2003.

This permit consists of 11 pages in Part I including effluent limitations and monitoring requirements: Attachment A (9 pages); 72 pages of Sludge Compliance Guidance and 25 pages in Part II including General Conditions and Definitions.

Signed this ^{22nd} day of **DECEMBER, 2006**


Linda M. Murphy, Director

Office of Ecosystem Protection
U.S. Environmental Protection Agency (EPA)
New England Region
Boston, Massachusetts

PART I.A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of the permit the Permittee is authorized to discharge treated sanitary waste waters from outfall Serial Number 001 into the Warner River. Such discharges shall be limited and monitored by the Permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at the end of all processes, including disinfection and dechlorination or at an alternative representative location, approved by the EPA and NHDES.

Effluent Parameter	Effluent Limit			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Frequency	Sample Type
Flow, MGD	Report	---	Report	Continuous	Recorder ¹
BOD ₅ ; mg/l (lbs/day)	30 (27.5)	45 (41.3)	50 (45.9)	2/Week ²	24-Hour Composite
TSS; mg/l (lbs/day)	30 (27.5)	45 (41.3)	50 (45.9)	2/Week ²	24-Hour Composite
pH Range ³ ; Standard Units	6.5 to 8.0 (See Section I.D.1.a.)			1/Day	Grab
Escherichia Coli ⁴ ; Colonies/100 ml	126	---	406	3/Week	Grab
Total Residual Chlorine ⁵ ; mg/l	0.26	---	0.45	1/Day	Grab

Effluent Parameter	Effluent Limit			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Frequency	Sample Type
Whole Effluent Toxicity LC50 ^{6,7,8} ; Percent Effluent	≥100			1/Year	24-Hour Composite
Ammonia Nitrogen as N ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Cadmium ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Chromium ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Copper ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Lead ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Nickel ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite
Total Recoverable Zinc ⁹ ; mg/l	---	---	Report	1/Year	24-Hour Composite

(Note: See page 3 for footnotes)

FOOTNOTES TO PART I.A.1 ON PAGES 2 AND 3

1. The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.
2. The influent concentrations of both BOD₅ and TSS shall be monitored twice per month (2/Month) using a 24-Hour Composite sample and the results reported as average monthly values.
3. State Certification requirement.
4. The average monthly value for Escherichia coli shall be determined by calculating the geometric mean. Escherichia coli shall be tested using test method 1103.1. found in *Test Methods for Escherichia coli in Water by Membrane Filter Procedure*, EPA-600/4-85/076 as amended by test method 9213 D.3. found in *Standard Methods for the Examination of Water and Wastewater*, 19th or subsequent Edition(s) as approved in 40 CFR Part 136. Escherichia coli monitoring shall be conducted concurrently with a total residual chlorine sample.
5. Total Residual Chlorine shall be measured using any one of the following three methods listed in a. through c.:
 - a. DPD spectrophotometric (colorimetric): EPA No. 330.5 or *Standard Methods* [18th or subsequent Edition(s) as approved in 40 CFR Part 136], No. 4500-Cl G.
 - b. DPD titrimetric (ferrous titrimetric) EPA No. 330.4 or *Standard Methods* [18th or subsequent Edition(s) as approved in 40 CFR Part 136], No. 4500-Cl F.
 - c. Amperometric titration EPA No. 330.1 or *Standard Methods* [18th or subsequent Edition(s) as approved in 40 CFR Part 136], No. 4500-Cl D or ASTM No. D1253-86(92).
6. LC50 is the concentration of wastewater (effluent) causing mortality to 50 percent (%) of the test organisms. The "100% limit" is defined as a sample which is composed of 100% effluent (See A.1.a. of Part 1 and Attachment A of Part 1). Therefore, a 100% limit means that a sample of 100% effluent shall cause no greater than a 50% mortality rate in that effluent sample.
7. The Permittee shall conduct a 48-hour acute survival toxicity test using the Daphnid (Ceriodaphnia dubia) and the Fathead Minnow (Pimephales promelas) on effluent samples following the protocol in Attachment A (Freshwater Acute Toxicity Test Procedure and Protocol dated December 1995). Toxicity test samples shall be collected and the test completed during the calendar quarter ending September 30th. Toxicity test results are to be submitted by October 15th.

8. This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the WET tests indicate the discharge exceeds any State water quality criterion. Results from these toxicity tests are considered "New Information" and the permit may be modified as provided in 40 CFR Section 122.62(a)(2).
9. For each WET test the Permittee shall report on the appropriate Discharge Monitoring Report (DMR) the concentrations of Ammonia Nitrogen as Nitrogen, Hardness, and Total Recoverable Aluminum, Cadmium, Chromium, Copper, Lead, Nickel and Zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the Minimum Quantification Level (MLs) shown in Attachment A on page A-7, or as amended. The Permittee should also note that all chemical parameter results must still be reported in the appropriate WET test toxicity report.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

1. The discharge shall not cause a violation of the water quality standards of the receiving water.
2. The Permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts. The discharge shall be adequately treated to insure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits float as foam, debris, scum or other visible pollutants. It shall be adequately treated to insure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.
3. The Permittee's treatment facility shall maintain a minimum of 85 percent removal of both BOD₅ and TSS. The percent removal shall be based on a comparison of average monthly influent versus effluent concentrations.
4. When the effluent discharged for a period of 3 consecutive months exceeds 80 percent of the 0.11 MGD design flow (0.088 MGD) the Permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the Permittee may be required to submit plans for facility improvements.
5. A User may not introduce into any Publicly Owned Treatment Works (POTWs) any pollutant(s) which cause Pass Through or Interfere with the operation or performance of the POTW. The terms User, Pass Through and Interference are defined in 40 CFR §403.3.

6. All POTWs must provide adequate notice to both EPA and the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) of the following:
7. Any new introduction of pollutants into the POTW from an indirect discharger in a primary industry category (see 40 CFR §122 Appendix A as amended) discharging process water; and
 - a. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit
 - b. For purposes of this paragraph, adequate notice shall include information on:
 - (1) the quantity and quality of effluent introduced into the POTW; and
 - (2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
8. The Permittee shall submit to EPA and NHDES-WD the name of any Industrial User (IU) who commences discharge to the POTW after the effective date of this permit:
 - a. That are subject to Categorical Pretreatment Standards (see list in 40 CFR §403 Appendix C as amended) pursuant 40 CFR §406.3 and 40 CFR Chapter I, Subchapter N.
 - b. That discharges an average of 25,000 gallons per day or more of process wastewater into the POTW (excluding sanitary, non-contact cooling and boiler blow-down wastewater)
 - c. That contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW.
 - d. That is designated as an IU by the Control Authority as defined in 40 CFR §403.12(a) on the basis that the industrial user has a reasonable potential to adversely affect the waste water treatment facility's operation, or violate any pretreatment standard or requirement in accordance with 40 CFR §403.8(f)(6).
9. In the event that the Permittee receives reports (baseline monitoring reports, 90-day compliance reports periodic reports on continued compliance, etc.) from Categorical Industrial Facilities (see list in 40 CFR §403 Appendix C as amended), the Permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and NHDES-WD.

B. UNAUTHORIZED DISCHARGES

The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the outfall listed in Part I A.1. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) are not authorized by this permit and shall be reported in accordance with Part II, Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting).

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions. The Permittee is required to complete the following activities for the collection system which it owns:

1. Maintenance Staff

The Permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

The Permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow

The Permittee shall control infiltration and inflow into its sewer systems as necessary to prevent high flow-related unauthorized discharges from its collection system and high flow-related violations of the wastewater treatment plant's effluent limitations.

The Permittee shall each submit a summary report of all actions taken to minimize Infiltration/Inflow (I/I) during the previous calendar year to EPA and the NHDES by **February 28th of each year**. The report shall also include a summary of unauthorized discharges during the previous calendar year which were caused by inadequate sewer system capacity, excessive I/I and operational/maintenance problems, including a status of action items necessary to eliminate the discharges. The information reported shall include the date, location, duration and volume of discharge as well as the cause of the overflow and the receiving water.

D. ALTERNATE POWER SOURCE

In order to maintain compliance with the terms and conditions of this permit, the Permittee shall provide an alternate power source with which to sufficiently operate its publicly owned treatment works, as defined at 40 CFR §122.2, which references the definition at 40 CFR 403.3(o).

E. SLUDGE CONDITIONS

1. The Permittee shall comply with all existing federal and State laws and regulations that apply to sewage sludge use and disposal practices and with the Clean Water Act (CWA) Section 405(d) technical standards.
2. The Permittee shall comply with the more stringent of either State (Env-Ws 800) or Federal (40 CFR Part 503) requirements.
3. The technical standards (Part 503 regulations) apply to facilities which perform one or more of the following use or disposal practices.
 - a. Land application - the use of sewage sludge to condition or fertilize the soil.
 - b. Surface disposal - the placement of sewage sludge in a sludge only landfill.
 - c. Fired in a sewage sludge incinerator.
4. The 40 CFR Part 503 conditions do not apply to facilities that place sludge within a municipal solid waste landfill (MSWLF). Part 503 relies on 40 Part 248 criteria, which regulates landfill disposal, for sewage sludge disposed in a MSWLF. These conditions, also, do not apply to facilities which do not dispose of sewage sludge during the life of the permit, but rather treat the sludge (lagoons-reed beds), or are otherwise excluded under 40 CFR Part 503.6.
5. The Permittee shall submit an annual report containing the information specified in the attached Sludge Compliance Guidance document. Reports are due annually by February 19th. Reports shall be submitted to the addresses (EPA and NHDES-WD) contained in the reporting section of the permit.
6. Sludge monitoring is not required by the Permittee when the Permittee is not responsible for the ultimate sludge use or disposal or when the sludge is disposed of in a MSWLF. The Permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such cases, the Permittee is required only to submit an annual report by **February 19th of each year** containing the following information:
 - a. Name and address of the contractor responsible for sludge use and disposal.

- b. Quantity of sludge in dry metric tons removed from the facility.

F. MONITORING AND REPORTING

Monitoring results shall be summarized for each calendar month and reported on separate Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period.

Signed and Dated original DMRs and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114-8127

Duplicate signed copies (original signature) of all written reports or notifications required herein or in Part II shall be submitted to the State at:

New Hampshire Department of Environmental Services (NHDES)
Water Division
Wastewater Engineering Bureau
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

All verbal reports or notifications shall be made to both EPA and NHDES.

G. STATE PERMIT CONDITIONS

1. The Permittee shall comply with the following conditions which are included as State Certifications Requirements:
 - a. The pH range of 6.5-8.0 Standard Units (S.U.) must be achieved in the final effluent unless the Permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water; or (2) that the naturally occurring receiving water pH is not significantly altered by the Permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside the range of 6.0-9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 C.F.R. §133.102(c).
 - b. Pursuant to State Law NH RSA 485-A:13 and the New Hampshire Code of Administrative Rules, Env-Wq 703.07(a) and Env-Ws 904.08 the following submissions shall be made to the NHDES-WD by a municipality proposing to accept into its POTW (including sewers and interceptors):

- (1) An "Application for Sewer Connection Permit" for any proposal to construct or modify any of the following:
 - (i) Any extension of a collector or interceptor, whether public or private, regardless of flow;
 - (ii) Any wastewater connection or other discharge in excess of 5,000 gpd;
 - (iii) Any wastewater connection or other discharge to a wastewater treatment facility operating in excess of 80 percent design flow capacity for 3 consecutive months;
 - (iv) Any industrial wastewater connection or change in existing discharge of industrial wastewater, regardless of quality or quantity; and
 - (v) Any sewage pumping station greater than 50 gpm or serving more than one building.
 - (2) An "Industrial Wastewater Discharge Request Application" for new or increased loadings of industrial waste, in accordance with Env-Ws 904.10.
- c. The Permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).
 - d. Any modifications of the Permittee's Sewer Use Ordinance, including local limitations on pollutant concentrations, shall be submitted to the NHDES-WD for approval prior to adoption by the Permittee.
 - e. Within 90 days of the effective date of this permit, the Permittee shall submit to NHDES-WD a copy of its current sewer use ordinance if it has been revised since any previously approved submittal.
 - f. Within 120 days of the effective date of this permit, the Permittee shall submit to NHDES-WD a current list of all industries discharging industrial waste to the municipal wastewater treatment plant. As a minimum, the list shall indicate the name and address of each industry, along with the following information: telephone number, contact person, products manufactured, industrial processes used, existing level of pretreatment, and list of existing industrial discharge permits with effective dates.

H. SPECIAL CONDITION

1. pH Limit Adjustment

- a. The Permittee may submit a written request to the EPA requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 C.F.R. Part 133) for this facility. The Permittee's written request must include the State's letter containing an original signature (no copies). The State's approval letter shall state that the Permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range, the naturally occurring receiving water pH will be unaltered. The letter must specify for each outfall the associated numeric pH limit range. Until written notice is received by certified mail from the EPA indicating the pH limit range has been changed, the Permittee is required to meet the permitted pH limit range in the respective permit.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

PUBLIC NOTICE START AND END DATE:

PUBLIC NOTICE NUMBER:

NPDES PERMIT NO.: NH0100498

NAME AND ADDRESS OF APPLICANT:

Warner Village Water District
P.O. Box 252
Warner, New Hampshire 03278

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Warner Wastewater Treatment Facility
55 West Joppa Road
Warner, New Hampshire 03278

RECEIVING WATER: Warner River (Hydrologic Unit Code: 01070003)

CLASSIFICATION: B

I. Proposed Action, Type of Facility and Discharge Location.

The above named applicant has applied to the U.S. Environmental Protection Agency (EPA) for reissue of its NPDES permit to discharge treated effluent into the designated receiving water (Warner River). The facility collects and treats domestic and commercial wastewater from the Town of Warner. This facility does not accept septage.

The existing permit was issued on June 21, 2001 and became effective July 21, 2001. The existing permit expired on July 21,

2006. The existing NPDES permit remains in effect since the permittee has filed a complete application for permit reissuance as per 40 Code of Federal Regulations (CFR) §122.6.

The Warner Wastewater Treatment Facility (WWTF) was designed as a 0.17 million gallon per day (MGD) wastewater treatment facility using oxidation ditches; i.e. extended aeration, as the plant's treatment process. In August 1995 the Warner Village Water District had their request approved by the New Hampshire Department of Environmental Services (NHDES) to decrease the facility's design flow to 0.11 MGD. The influent, after passing through a comminutor building containing grinders, a v-notched weir and a grit collector; enters the one or both rectangular shaped, curved ended oxidation ditches. Activated sludge is injected from the secondary clarifier to the ditches to facilitate the biological treatment of the wastewater's organics. After leaving the second oxidation ditch the wastewater flows to the secondary clarifier. Grease and scum from the clarifier, along with the grit removed from the influent, is buried onsite. Waste sludge from the clarifier is sent to a holding tank. The sludge use to enter four, reed plant drying beds. The use of the facility's reed drying beds, the reeds consuming sludge during their growth, was discontinued in 1999. Presently, fluid *Supernatant* ~~drained from the tank~~ is sent back to the treatment works. ^{and} Settled sludge in the holding tank is currently trucked off-site to another Publicly Owned Treatment Works (POTW) for processing. The wastewater stream from the secondary clarifier flows next through a v-notched weir where the effluent is disinfected with sodium hypochlorite. After disinfection the sodium hypochlorite is removed from the effluent by addition of sodium bisulfate. The effluent, after dechlorination, discharges into the Warner River via Outfall 001. The effluent from the facility does not discharge directly to a designated beach area.

Map location of the treatment plant and its effluent discharge point is contained in Attachment A.

II. Description of Discharge.

A quantitative description of the treatment plant's discharge in terms of recent effluent-monitoring data from the 49-month period, September 2001 through February 2006, is shown in Attachment B. The data was compiled from Discharge Monitoring Reports (DMR) submitted to the EPA and New Hampshire Department of Environmental

Services - Water Division (NHDES-WD. The draft permit contains limitations for pH, Five-Day Biochemical Oxygen Demand (BOD₅), Total Suspended Solids (TSS), Escherichia coli Bacteria, Total Residual Chlorine (TRC), and Whole Effluent Toxicity (WET).

III. Limits and Conditions.

Effluent limitations, monitoring requirements, and any implementation schedule (if required) are found in PART I of the draft NPDES permit. The basis for each limit and condition is discussed in sections IV.C. through IV.J. of this Fact Sheet.

IV. Permit Basis and Explanation of Effluent Limitations Derivation.

A. General Regulatory Background

The Clean Water Act (ACT) prohibits the discharge of pollutants to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit unless such a discharge is otherwise authorized by the ACT. The NPDES permit is the mechanism used to implement technology and water-quality based effluent limitations and other requirements including monitoring and reporting. The draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the ACT and any applicable State administrative rules. The regulations governing EPA's NPDES permit program are generally found in 40 CFR Parts 122, 124, 125 and 136.

EPA is required to consider technology and water-quality based requirements as well as those requirements and limitations included in the existing permit when developing the revised permit's effluent limits. Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the ACT. Secondary treatment technology guidelines; i.e., effluent limitations, for POTWs can be found at 40 CFR §133.

In the absence of published technology-based effluent guideline*es, the permit writer is authorized under Section 402(a)(1)(B) of the

Act to establish effluent limitations on a case-by-case basis using Best Professional Judgment (BPJ).

In general, all statutory deadlines for meeting various treatment technology-based effluent limitations established pursuant to the ACT have expired. When technology-based effluent limits are included in a permit, compliance with those limitations is, effectively, from the date the revised permit is issued. (See 40 CFR §125.3(a)(1)) Compliance schedules and deadlines not in accordance with the statutory provisions of the Act can not be authorized by a NPDES permit.

EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve state or federal water-quality standards. (See Section 301(b)(1)(C) of the ACT)

A water-quality standard consists of three elements: (1) beneficial designated use or uses for a water body or a segment of water body; (2) a numeric or narrative water-quality criteria sufficient to protect the assigned designated use(s); and (3) antidegradation requirement to ensure that once a use is attained it will not be eroded.

Receiving stream requirements are established according to numerical and narrative standards adopted under state law for each stream classification. When using chemical-specific numeric criteria from the state's water-quality standards to develop permit limits both the acute and chronic aquatic-life criteria, expressed in terms of maximum allowable in-stream pollutant concentration, are used. Acute aquatic-life criteria are considered applicable to daily time periods (maximum daily limit) and chronic aquatic-life criteria are considered applicable to monthly time periods (average monthly limit). Chemical-specific limits are allowed under 40 CFR §122.44(d)(1) and are implemented under 40 CFR §122.45(d).

B. Introduction

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic and whole effluent toxicity) that is or may be discharged at a level that causes or has "reasonable potential" to cause or contribute to an excursion above any water-quality criterion. An excursion occurs if the projected or actual in-stream concentration exceeds the applicable criterion.

Reasonable Potential

In determining reasonable potential, EPA considers: (1) existing controls on point and non-point sources of pollution; (2) pollutant concentration and variability in the effluent and receiving water as determined from permit's reissuance application, Monthly Discharge Monitoring Reports (DMRs), and State and Federal Water Quality Reports; (3) sensitivity of the species to toxicity testing; (4) statistical approach outlined in Technical Support Document for Water Quality-based Toxics Controls, March 1991, EPA/505/2-90-001 in Section 3; and, where appropriate, (5) dilution of the effluent in the receiving water. In accordance with New Hampshire statutes and administrative rules [RSA 485-A:8, VI, Env-Ws 1705], available dilution is based on a known or estimated value of the lowest average annual flow which occurs for seven (7) consecutive days with a recurrence interval of once in ten (10) years (7Q10) for aquatic life or the mean annual flow for human health (carcinogens only) in the receiving water at the point just upstream of the outfall. Furthermore, 10 percent (%) of the receiving water's assimilative capacity is held in reserve for future needs in accordance with New Hampshire's Surface Water Quality Regulations Env-Ws 1705.01.

Anti-Backsliding

The permit may not be renewed, reissued or modified with less stringent limitations or conditions than those conditions in the previous permit unless in compliance with the anti-backsliding requirement of the ACT (See Sections 402(o) and 303(d)(4) of the ACT and 40 CFR §122.44(1)(1 and 2). EPA's anti-backsliding provisions found in 40 CFR §122.44(1) prohibit the relaxation of permit limits, standards, and conditions unless certain conditions are met. Therefore, unless those conditions are met the limits in the reissued permit must be at least as stringent as those in the previous permit.

State Certification

The Act requires that EPA obtain State Certification which asserts that all water-quality standards will be satisfied. The permit must conform to the conditions established pursuant to a State Certification under Section 401 of the ACT (40 CFR §124.53 and §124.55). EPA regulations pertaining to permit limits based upon

water-quality standards and state requirements are contained in 40 CFR §122.44(d).

The conditions of the permit reflect the goal of the CWA and EPA to achieve and then to maintain water quality standards. To protect the existing quality of the State's receiving waters, the NHDES-WD adopted anti-degradation requirements in their December 3, 1999, Surface Water Quality Regulations (Env-Ws 1708). Hereinafter, New Hampshire's Surface Water Quality Regulations are referred to as the NH Standards.

C. Flow

As previously indicated, the NHDES-WD approved the reduction of the WWTF design flow to 0.11 MGD from 0.17 MGD on August 25, 1995. The existing permit limits were checked based on the lowered design flow. This reduction may preclude any significant increase in the facility's design flow based on State antidegradation statutes.

D. Conventional Pollutants

Five-day Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS)

Effluent limitations in the draft permit for Five-day Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) average monthly, average weekly and maximum daily concentrations and allowable loads are based upon limits in the existing permit. Carry-over of these limits from the existing to the draft permit is in accordance with the antibacksliding requirements found in 40 CFR §122.44.

In addition, the average monthly and weekly concentration-based limitations for Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS) are based on requirements under Section 301(b)(1)(B) of the ACT as defined in 40 CFR §133.102. See Attachment C for the calculation check of the mass-based load limits.

pH

The pH limits are 6.0 to 8.0 Standard Units (S.U.) in this draft permit. The existing permit pH range was revised to 6.0 to 8.0 S.U. because the WVWD had demonstrated to the NHDES-WD and EPA that the

Class B pH water quality standard range of 6.0 to 8.0 S.U. would be protected if the facility's pH was maintained between 6.0 to 8.0 S.U.

The existing permit's pH limits of 6.0 to 8.0 S.U. were **not** carried over to the draft permit. The NHDES-WD requires each permittee who has been granted a pH adjustment to reapply for that adjustment after reissue of a NPDES permit.

Language has been added; therefore, to the State Permit Conditions of the draft permit (PART I.E.1.a.) allowing for a change in pH limit(s) under certain conditions. A change would be considered if the applicant can demonstrate to the satisfaction of NHDES-WD that the in-stream pH standard will be protected when the discharge is outside the permitted range, then the applicant or NHDES-WD may request (in writing) that the permit limits be modified by EPA to incorporate the results of the demonstration.

Anticipating the situation where NHDES-WD grants a formal approval changing the pH limit(s) to outside the 6.5 to 8.0 Standard Units (S.U.), EPA has added a provision to this draft permit. (See SPECIAL CONDITIONS section) That provision will allow EPA to modify the pH limit(s) using a certified letter approach. This change will be allowed as long as it can be demonstrated that the revised pH limit range does not alter the naturally occurring receiving water pH. Reference Part I.E.1. SPECIAL CONDITIONS in that permit. However, the pH limit range cannot be less restrictive than 6.0 - 9.0 S.U. found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for the facility.

If the State approves results from a pH demonstration study, this permit's pH limit range can be relaxed in accordance with 40 CFR §122.44(l)(2)(i)(B) because it will be based on new information not available at the time of this permit's issuance. This new information includes results from the pH demonstration study that justifies the application of a less stringent effluent limitation. EPA anticipates that the limit determined from the demonstration study as approved by the NHDES-WD will satisfy all effluent requirements for this discharge category and will comply with NH Standards amended on December 3, 1999.

Escherichia coli

The limits for Escherichia coli bacteria at Outfall 001 are based upon limits in the existing permit in accordance with the anti-backsliding requirements found in 40 CFR Part 122.44(1). There are two sets of Escherichia coli bacterial limits in the State's Statutes (N.H. RSA 485-A:8): one for beach areas, and one for non-designated beach areas. Since no designated beaches exist in the vicinity of the Warner outfall, the non-designated beach area limit was applied. Calculation for compliance with the Average Monthly limit for Escherichia coli shall be determined by using the geometric mean. The original basis for these limits is New Hampshire's State statutes (N.H. RSA 485-A:8). Historically, the State of New Hampshire required bacteria limits to be satisfied at end-of-pipe with no allowance for dilution. Therefore, in addition to the anti-backsliding requirement, these limits are based on State certification requirements for Publicly Owned Treatment Works under section 401(d) of the Clean Water Act, 40 CFR Parts 124.53 and 124.55.

E. Non-Conventional and Toxic Pollutants

Water-quality based limits for specific toxic pollutants such as chlorine, ammonia, etc. are determined from numeric chemical specific criteria derived from extensive scientific studies. The EPA has summarized and published specific toxic pollutants and their associated toxicity criteria in Quality Criteria for Water, 1986, EPA 440/5-86-001 as amended, commonly known as the federal "Gold Book". Each criteria consists of two values; an acute aquatic-life criteria to protect against short-term effects, such as death, and a chronic aquatic-life criteria to protect against long-term effects, such as poor reproduction or impaired growth. New Hampshire adopted these "Gold Book" criteria, with certain exceptions and included them as part of the State's Water Quality Regulations adopted on December 3, 1999. EPA uses these pollutant specific criteria along with available dilution in the receiving water to determine a specific pollutant's draft permit limit. Available dilution is discussed in the next subheading.

Available Dilution

The available dilution (also referred to as dilution factor) was calculated as 23.5. The calculation of the dilution factor was based on the plant's design flow of 0.11 MGD or 0.17 cfs (cubic feet per second), an estimate of the 7Q10 low flow at Outfall 001 of 4.28 cfs, and a State of New Hampshire prescribed minimum 10%

set aside for reserve. There has been no change in these parameters from the existing permit. The available dilution remains at 23.5 in the draft permit.

Federal regulation, 40 CFR §122.45(b)(1), require effluent limitations be calculated using a POTW's design flow. The 7Q10 low flow is the mean low flow over seven consecutive days, recurring every ten years on average. An exact value of the 7Q10 flow at Outfall 001 is not available. The 7Q10 low flow is estimate based on the 7Q10 flow measure at the U.S. Geological Survey gaging station at Davisville, NH; adjusted for the intervening drainage area between the gaging station and the outfall. The State of New Hampshire has reserved ten percent assimilative capacity of surface water for future needs. (Refer to Env-Ws 1705.01) See Attachment C for calculation of the available dilution.

Total Residual Chlorine (TRC)

Chlorine and chlorine compounds, such as "organo-chlorines", produced by the chlorination of wastewater can be extremely toxic to aquatic life. Section 101(a)(3) of the CWA and State law N.H. RSA 485-A:8, VI and the N.H. Code of Administrative Rules, PART Env-Ws 1703.21(a) prohibits the discharge of toxic pollutants in toxic amounts.

The existing permit contains an average monthly and daily maximum limit for Total Residual Chlorine (TRC) of 0.26 mg/l and 0.45 mg/l, respectively. These limits have been retained, unchanged from the existing permit according to the antibacksliding provisions in Section 402(o) and 303(d) of the Act and 40 CFR §122.44(l)(1 and 2). Refer to Attachment C for the calculation check of the TRC limits.

F. Whole Effluent Toxicity

EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991, recommends using an "integrated strategy" containing both pollutant (chemical) specific approaches and whole effluent (biological) toxicity approaches to control toxic pollutants in effluent discharges from entering the nation's waterways. EPA New England adopted this "integrated strategy" on July 1, 1991, for use in permit development and issuance. Pollutant specific approaches, as those in the Gold Book and State regulations, address individual chemicals. A Whole

Effluent Toxicity (WET) approach, alternatively, evaluate interactions between pollutants thus rendering an "overall" or "aggregate" toxicity assessment of the effluent. WET testing measures the "Additive" and/or "Antagonistic" effects of individual chemical pollutants, which pollutant specific approaches do not. WET testing also provides the best means to discover the presence of an unknown toxic pollutant. An integrated strategy, consisting of both specific pollutant and WET testing, is required to protect aquatic life and human health.

New Hampshire law states that, "...all waters shall be free from toxic substances or chemical constituents in concentrations or combination that injure or are inimical to plants, animals, humans, or aquatic life;...." (N.H. Surface Water Quality Regulations, PART Env-Ws 1703.21(a)). The federal NPDES regulations, 40 CFR §122.44(d)(1)(v), require whole effluent toxicity limits in a permit when a discharge has a "reasonable potential" to cause or contribute to an excursion above the State's narrative criterion for toxicity. The draft permit's WET limit remains the same as those in the existing permit.

EPA New England's current policy requires toxicity testing in all municipal permits. The type of whole effluent toxicity (WET) test, acute and/or chronic and effluent limitations (LC50 and/or C-NOEC), are based on available dilution (See Attachment D). For minor wastewater treatment facilities, such as Warner's, EPA policy is identical to that described above except for monitoring frequency, for which EPA allows annual testing by minor POTWs with dilution factors greater than 20. Warner's available dilution factor was calculated as 23.5 (See Attachment C). A dilution factor of 23.5 indicates Warner is a medium to low risk POTW. The permittee will be required to perform one acute WET test during the third quarter of the calendar year with the results to be reported on the October DMR.

If toxicity is found, monitoring frequency and testing requirements may be increased. The permit may also be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements or chemical specific limits. These actions will occur if the Regional Administrator determines the WET limits are not adequate to protect the NH Surface Water Quality Standards, and users of the waterways are not adequately protected during the remaining life of the permit. Results of these toxicity tests are considered "new information not available at permit

development"; therefore, the permitting authority is allowed to use said information to modify an issued permit under authority in 40 CFR §122.62(a)(2).

This draft permit requires the reporting of selected parameters determined from the chemical analysis of the WET tests effluent samples. Specifically, parameters for the constituents of ammonia nitrogen as nitrogen, hardness, cadmium, copper, chromium, lead, nickel, and zinc are to be reported on the appropriate Discharge Monitoring Reports for entry into the EPA's Permit Compliance Systems Data Base. EPA New England does not consider reporting these requirements an unnecessary burden as the reporting of these constituents is required with the submission of each toxicity report (See Draft Permit, Attachment A, page A-7).

G. Sludge

Section 405(d) of the ACT requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations were signed on November 25, 1992, published in the Federal Register on February 19, 1993, and became effective on March 22, 1993. Domestic sludges which are land applied; disposed of in a surface disposal unit; or fired in a sewage sludge incinerator are subject to Part 503 technical and to State Env-Ws 800 standards. Part 503 regulations have a self-implementing provision; however, the ACT requires implementation through permits. Domestic sludges which are disposed of in municipal solid waste landfills are in compliance with Part 503 regulations provided the sludge meets the quality criteria of the landfill and the landfill meets the requirements of 40 CFR Part 258.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards. In addition, EPA New England has included with the draft permit a Sludge Compliance Guidance document for use by the permittee in determining their appropriate sludge conditions for their chosen method of sludge disposal.

The permittee is also required to submit to EPA and to NHDES-WD annually, on February 19th, an annual report containing the information specified in the Sludge Compliance Guidance Document for the permittee's chosen method of sludge disposal once that happens.

H. Industrial Users

The permittee is presently not required to administer a pretreatment program based on the authority granted under 40 CFR \$122.44(j), 40 CFR §§ 403 and 307 of the Act. However, the draft permit contains conditions that are necessary to allow EPA and NHDES-WD to ensure that pollutants from industrial users will not pass through the facility and cause water-quality standards violations and/or sludge use and disposal difficulties or cause interference with the operation of the treatment facility.

The permittee is required to notify EPA and NHDES-WD whenever a process wastewater discharge to the facility from a primary industrial category (see 40 CFR \$122 Appendix A for list) is planned or if there is any substantial change in the volume or character of pollutants being discharged into the facility by a source that was discharging at the time of issuance of the permit.

The permit also contains the requirements to: (1) report to EPA and NHDES-WD the name(s) of all Industrial Users (IU) subject to Categorical Pretreatment Standards pursuant to 40 CFR \$403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415, 417-436, 439-440, 443, 446-447, 454-455, 457-461, 463-469, and 471 as amended) and/or New Hampshire Pretreatment Standards (Env-Ws 904) who currently discharge to the POTW as well as those who commence discharge to the POTW after the effective date of the finally issued permit, and (2) submit to EPA and NHDES-WD copies of Baseline Monitoring Reports and other pretreatment reports submitted by industrial users.

I. Essential Fish Habitat and Endangered SpeciesEssential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104267), established a new requirement to describe and identify (designate) "essential fish habitat" (EFH) in each federal fishery management plan. Only species managed under a federal fishery management plan are covered. Fishery Management Councils determine which areas will be designated as EFH. The Councils have prepared written descriptions and maps of EFH, and include them in fishery management plans or their amendments. EFH designations for New

England were approved by the Secretary of Commerce on March 3, 1999.

The 1996 Sustainable Fisheries Act broadly defined essential fish habitat as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Waters include aquatic areas and their associated physical, chemical and biological properties. Substrate includes sediment, hard bottom, and structures underlying the waters. Necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. Spawning, breeding feeding, or growth to maturity covers all habitat types utilized by a species throughout its life cycle. Adversely affect means any impact which reduces the quality and/or quantity of EFH. Adverse affects may include direct (i.e. contamination; physical disruption), indirect (i.e. loss of prey), site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of action

The Magnuson-Stevens Act requires all federal agencies to consult with NMFS on all actions, proposed actions, permitted, funded, undertaken by the agency, which "may adversely affect any essential fish habitat." The Warner River is designated an EFH for Atlantic Salmon (*Salmo salar*), and Warner's POTW outfall discharges to the Warner River. Since the POTW's outfall discharges to a designated EFH, the EPA has begun consultation with NMFS pursuant to the requirements under the Magnuson-Stevens ACT.

Endangered Species

The Endangered Species Act (16 USC 1451 et seq) requires the EPA ensure that any action authorized by the EPA is not likely to jeopardize the continued existence of any endangered or threaten species or adversely affect its critical habitat. Further, 40 CFR 122.49(c) requires the EPA to consult with the U.S. Fish and Wildlife Service (USFWS) to determine particular permit conditions when the regulations of the Endangered Species Act may apply.

There are no endangered species resident in the area of the Warner River where the Warner WWTF discharges. The EPA, therefore, does not have to consult with the USFW

J. Effluent Monitoring

The effluent monitoring requirements have been established to yield data representative of the discharge under the authority of Section 308(a) of the CWA in accordance with 40 CFR § 122.41(j), 122.44(i) and 122.48. Compliance monitoring frequencies for Flow, BOD₅, TSS, Total Residual Chlorine, pH and Escherichia coli in the draft permit have been established in accordance with the EPA/NHDES-WD Effluent Monitoring Guidance mutually agreed upon and implemented in July 19, 1999.

WET test monitoring requirements have been set according to EPA New England's Municipal Toxicity Policy for Minor POTWs. As explained in the Whole Effluent Toxicity section, Section IV.F., the once per year WET testing frequency is maintained from the existing permit.

It's the intent of EPA and NHDES-WD to establish minimum monitoring frequencies in all NPDES permits at permit reissue and/or modification in accordance with this Effluent Monitoring Guidance. There were no revisions made in either monitoring parameters or sampling frequency in the draft permit from the existing permit. The EPA and NHDES-WD considers the draft permit's sample parameters and sample frequency sufficient to detect violations of the State's Water Quality Standards.

Parameter	Existing Permit		Draft Permit	
	Sampling Frequency	Sample Type	Sampling Frequency	Sample Type
Flow	Continuous	Recorder	Continuous	Recorder
BOD ₅	2/Week	24hr Composite	2/Week	24hr Composite
TSS	2/Week	24hr Composite	2/Week	24hr Composite
Total Residual Chlorine	1/Day	Grab	1/Day	Grab
Escherichia coli	3/Week	Grab	3/Week	Grab

pH	1/Day	Grab	1/Day	Grab
WET	1/Year	Grab	1/Year	24hr Composite

The remaining conditions of the permit are based on the NPDES regulations 40 CFR Parts 122 through 125 and consist primarily of management requirements common to all permits.

V. Antidegradation

This draft permit is being reissued with allowable wasteloads identical those in the existing permit, with identical parameter coverage and no change in the outfall location. Since the State of New Hampshire has indicated there will be no lowering of water quality and no loss of existing uses, no additional antidegradation review is warranted.

VI. State Certification Requirements

EPA may not issue a permit unless the State Water Pollution Control Agency with jurisdiction over the receiving water(s) either certifies that the effluent limitations and/or conditions contained in the permit are stringent enough to assure, among other things, that the discharge will not cause the receiving water to violate NH Standards or waives its right to certify as set forth in 40 CFR §124.53.

Upon public noticing of the draft permit, EPA is formally requesting that the State's certifying authority make a written determination concerning certification. The State will be deemed to have waived its right to certify unless certification is received within 60 days of receipt of this request.

The NHDES-WD is the certifying authority. EPA has discussed this draft permit with the Staff of the Wastewater Engineering Bureau and expects that the draft permit will be certified. Regulations governing state certification are set forth in 40 CFR §§124.53 and 124.55.

The State's certification should include the specific conditions necessary to assure compliance with applicable provisions of the Clean Water Act, Sections 208(e), 301, 302, 303, 306 and 307 and with appropriate requirements of State law. In addition, the State should provide a statement of the extent to which each condition of the draft permit can be made less stringent without violating the requirements of State law. Since the State's certification is provided prior to permit issue, any failure by the State to provide this statement waives the State's right to certify or object to any less stringent condition. These less stringent conditions may be established by EPA during the permit issuance process based on information received following the public noticing. If the State believes that any conditions more stringent than those contained in the draft permit are necessary to meet the requirements of either the CWA or State law, the State should include such conditions and, in each case, cite the CWA or State law reference upon which that condition is based. Failure to provide such a citation waives the right to certify as to that condition. The only exception to this is the sludge conditions/requirements implementing Section 405(d) of the CWA are not subject to the Section 401 State Certification requirements

Reviews and appeals of limitations and conditions attributable to State certification shall be made through the applicable procedures of the State and may not be made through the applicable procedures of 40 CFR Part 124.

VII. Comment Period, Hearing Requests, Procedures for Final Decisions, and EPA Contact.

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to:

Mr. John Paul King, Environmental Scientist
 U.S. Environmental Protection Agency
 1 Congress Street
 Suite 1100 (Mailcode CIP)
 Boston, Massachusetts 02114-2023
 Telephone: (617) 918-1295
 FAX No.: (617) 918-1505
 or

Ms. Susan A. Willoughby, P.E.
NH Department of Environmental Services: Water Division
P.O. Box 95, 29 Hazen Drive
Concord, New Hampshire 03302-0095
Telephone: (603) 271-3307
FAX No.: (603) 271-4128

Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issue proposed to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit, the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston Office.

Following the close of the comment period, and after a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the final permit decision, any interested person may submit a request for a formal hearing to reconsider or contest the final decision. Requests for formal hearing must satisfy the requirement of 40 CFR §124.74.

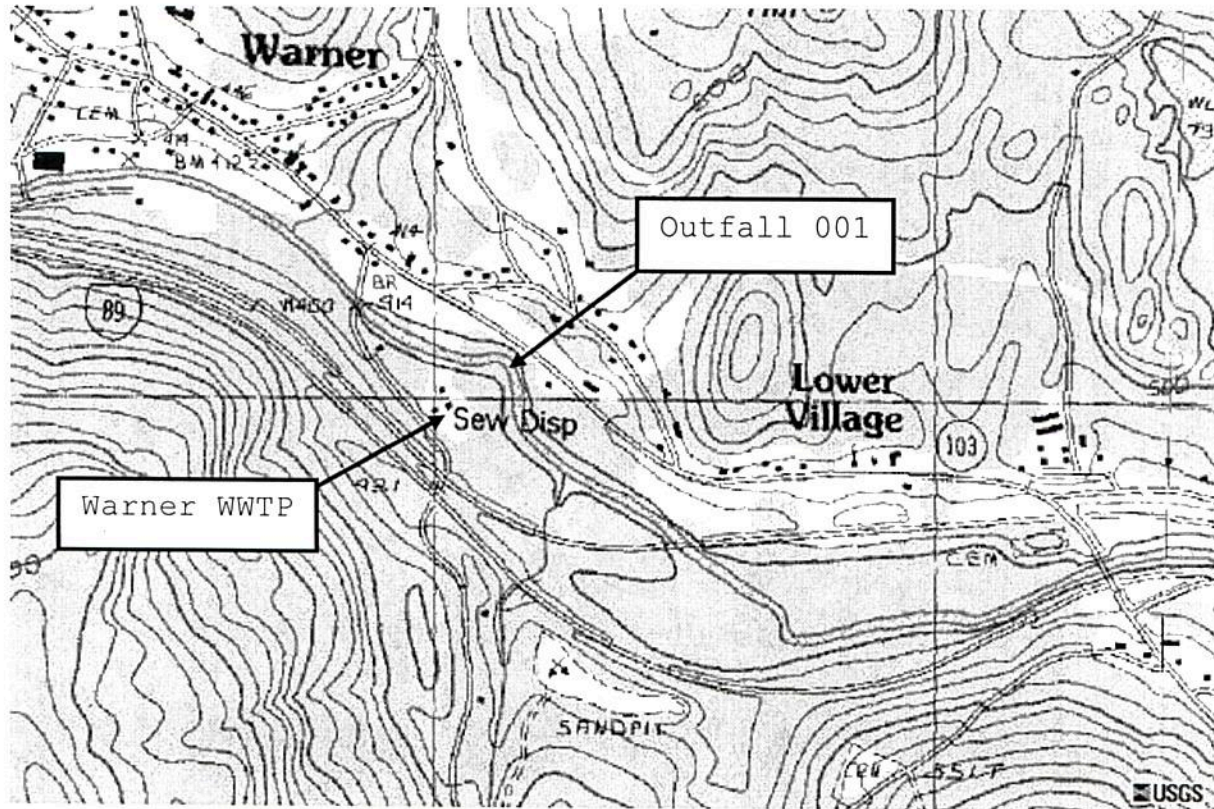
Information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays.

Date

Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Appendix A

WARNER WASTEWATER TREATMENT PLANT LOCATION MAP



Appendix B

TABLE I: EFFLUENT CHARACTERISTICS AT OUTFALL 001

The following effluent characteristics were derived from analysis of discharge monitoring data collected from Outfall 001 during the 66-month period, August 2001 through February 2006. This data was extracted from the monthly Discharge Monitoring Reports (DMR's) submitted by the Warner's Wastewater Treatment Plant. These effluent values characterize the treated sanitary waste waters discharged from this facility.

TABLE I

Effluent Characteristic

Effluent Characteristic	Average of Average Monthly	Maximum of Maximum Daily ¹
Flow (MGD)	0.056	0.530, 0.198, 0.129
pH (Standard Units)	--	6.0 to 7.8 ²
<u>Escherichia coli</u> (Colonies/100 ml)	8.83	>8000, 2017, 850
Total Residual Chlorine (mg/L)	0.047	1.59, 0.42, 0.41
TSS (lbs/day)	3.7	72, 20, 18
TSS (mg/L)	15.6	181, 49, 38
TSS (Percent Removal)	96.4	87 ³ , 88 ³ , 89 ³
BOD ₅ (lbs/day)	3.7	23, 17, 15
BOD ₅ (mg/L)	14.9	37, 36, 35
BOD ₅ (Percent Removal)	94.2	90 ³ , 91 ³ , 93 ³

1. More than one number represents the second and third highest values, except for pH.

2. Numbers listed are minimum and maximum daily readings.

3. Minimums of the Average Monthly values.

TABLE II

Whole Effluent Toxicity Testing

Effluent Test	Test Result 2001 - 2005				
	LC50 ¹ (Per Cent Effluent)				
	2001	2002	2003	2004	2005
<u>Ceriodaphnia dubia</u>	>100	100	>100	>100	>100
<u>Pimephales promelas</u>	>100	100	>100	>100	>100

1. This test involves preparing a series of effluent concentrations by diluting the effluent with receiving water. Groups of test animals, i.e. Ceriodaphnia dubia and Pimephales promelas, are exposed to each effluent concentration and a control for a specific period. The mortality data for each concentration can be used to calculate (by regression) the medium lethal concentration or LC-50. LC-50 is defined as the concentration which kills half the test animals. Samples with a high LC-50 value are less likely to cause environmental impact.

Appendix C

MAXIMUM ALLOWABLE LOADS

Equation used to calculate non-TMDL mass limits for BOD₅ and TSS.

$$L = C * Q_{PDF} * 8.345$$

Where:

- L - Maximum allowable load, in lb/day
- C - Maximum allowable effluent concentration for reporting period, in mg/l. (Reporting periods are average monthly, average weekly and maximum daily; 30, 45 and 50 mg/l, respectively)
- Q_{PDF} - Treatment plant's design flow, in MGD.
Q_{PDF} = 0.11 MGD
- 8.345 - Factor to convert effluent concentration, in mg/l, and plant's design flow, in MGD, to lbs/day.

AVAILABLE DILUTION FACTOR

7Q10 Flow at Outfall 001 Estimate

Warner WWTF was designed to process a wastewater flow of 0.11 MGD. The 7Q10 low flow on the Warner River in the vicinity of the WWTF outfall was calculated by using the U.S. Geological Survey's Warner River gauging station near Davisville, NH (Station No. 01086000). The Davisville gauging station is downstream of Outfall 001. The approach used to estimate the 7Q10 at Outfall 001; therefore, is to remove the intervening drainage area's contribution to the Warner River's flow. This is accomplished by applying a proportional relationship between the Davisville drainage area and Outfall 001's drainage area.

$$Q_{001} = \left(\frac{DA_{001}}{DA_G} \right) * Q_G$$

Where:

- Q_{001} - Estimated 7Q10 flow at Outfall 001; in cfs
- DA_{001} - Drainage area at Outfall 001; 118 mi²
- DA_G - Drainage area at Davisville; 146 mi²
- Q_G - 7Q10 flow at Davisville gage; 5.29 cfs

Dilution Factor Calculation

Equation used to calculate Dilution Factor (DF) at Outfall 001.

$$DF = \frac{[(Q_{001}) + (Q_{PDF} * 1.547)]}{(Q_{PDF} * 1.547)} * 0.9$$

Where:

- Q_{001} - Equivalent 7Q10 flow at Outfall 001, in cfs.
 $Q_{001} = 4.28$ cfs
- Q_{PDF} - Treatment plant's design flow, in MGD. $Q_{PDF} = 0.11$ MGD
- 1.547 - Factor to convert MGD to cfs
- 0.9 - Factor to reserve of 10% of river's assimilative capacity.

WATER QUALITY CRITERIA BASED LIMIT

Equation used to calculate average monthly and maximum daily Total Residual Chlorine limits.

$$\text{Chlorine Limit} = \text{Dilution Factor} \times \text{Water Quality Criteria}$$

Where:

Water Quality Criteria for chlorine:

- 0.011 = Chronic Criterion (mg/l) to Protect Aquatic-Life
- 0.019 = Acute Criterion (mg/l) to Protect Aquatic-Life